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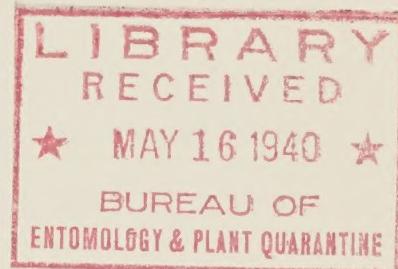
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February, 1940

SUGGESTIONS FOR THE CONTROL
OF THE PEA WEEVIL IN

1940



Prepared by the Pacific Northwest Cooperative Pea Weevil Control Project Committee Representing a Number of State Agricultural Experiment Stations, County Agricultural Agents and the Bureau of Entomology and Plant Quarantine, United States Department of Agriculture.

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Foreword

The fifth annual conference of Federal, State, and County workers interested in the pea weevil problem in the Pacific Northwest was held at Walla Walla, Washington, on February 12, 1940, under the auspices of the Pacific Northwest Cooperative Pea Weevil Control Project Committee.

During this conference, papers resulting from investigational work on the pea weevil problem during the season of 1939 were presented by State and Federal workers and others represented in pea production.

The following committee prepared suggestions for the control of the pea weevil in 1940:

R. D. Eichmann (Chairman) Washington Agricultural Experiment Station.
Don C. Mote, Oregon Agricultural Experiment Station.
R. L. Webster, Washington Agricultural Experiment Station
K. W. Gray, Oregon Agricultural Experiment Station
W. E. Shull, Idaho Agricultural Experiment Station
F. G. Hinman, Bureau of Entomology and Plant Quarantine
T. A. Brindley, Bureau of Entomology and Plant Quarantine
J. C. Chamberlin, Bureau of Entomology and Plant Quarantine
L. G. Smith (Secretary) Extension Service, State College of Washington
A. E. Bonn, Bureau of Entomology and Plant Quarantine
R. A. Fisher, Idaho Agricultural Experiment Station
W. E. Peay, Bureau of Entomology and Plant Quarantine

The "Suggestions for the Control of the Pea Weevil, 1940" which incorporate the consensus of the men actively engaged in pea weevil control operations, or who were directly associated with these workers, have been typed and a copy is attached.

SUGGESTIONS FOR THE CONTROL OF THE PEA WEEVIL, 1940

Prepared by the Pacific Northwest Cooperative
Pea Weevil Control Project Committee

February 12, 1940

I. WEEVIL CONTROL IMPORTANT

Control of the pea weevil is essential to the continued welfare of both the canning and dry pea industries. Weevily peas are not desirable for human consumption, and the presence of the weevil may cause serious losses to both the dry seed pea industry and the processing industry.

II. DUSTING RECOMMENDATIONS

Experiments and extensive tests on a commercial scale conducted in Oregon, Washington, and Idaho have demonstrated that the pea weevil can be controlled by cultural practices, sanitation, and the use of rotenone-bearing insecticides.

1. Dusting for control of the pea weevil on edible peas (including seed peas of edible varieties).

Dusts should be prepared with some inert material such as talc, diatomaceous earth, or clay and should contain not less than three-quarters of one per cent (0.75%) rotenone.

Based on experience to date, the plant source of rotenone does not appear to be a factor.

Applications should be made at the rate of 20 to 25 pounds per acre by an efficient dusting machine.

a. Time and number of applications.

It must be emphasized that successful control of the weevil by dusting depends upon the timeliness of application. The dust must be applied between the interval that the pea weevils enter the field and before the females begin egg laying.

In general, the first application of dust should be made within a few days after the peas start to bloom and before any pods have set. At this time the weevils are still largely concentrated near the field edges. Peas blooming early in the season and before all weevils are out of hibernation may receive additional weevil populations after the first application. In these cases additional applications may be necessary.

The period between successive applications will depend to some extent on weather conditions, being shorter in warm periods than in cool. This period will vary from four to ten days.

b. Dusting equipment.

Dusting equipment should be of such type as to deliver the required amount of dust and to cover adequately the acreage in the limited time necessary for proper control of the insect. The capacity will vary with the width of the machine and speed of travel. For example, a dusting machine covering a swath 35 feet wide and operated at a speed of $4\frac{1}{2}$ miles per hour is capable of dusting approximately 16 acres per hour. The duster should be equipped with a canvas hood or trailer, or a combination of both, for the purpose of reducing wind drift of the dust. Where a trailer is used alone, it should be at least 25 feet in length.

In general, effective dust applications cannot be attained if wind velocity exceeds 12 miles per hour. Satisfactory results have been attained with power-driven dusting equipment mounted on tractors and trucks or drawn by tractors, trucks or horses. In any case the speed should not exceed five miles per hour.

c. Dusting procedure

Since the pea weevil, in migrating from hibernation quarters to the pea fields, tends first to infest the field edges, it is possible to acquire adequate control in most cases by dusting a marginal strip. Where fields are ten acres or less, it is advisable to dust the entire field for satisfactory results. Where large fields are involved, a sweep net survey should be made and the infested areas marked off to indicate the portions to be dusted. The number of weevils collected in 25 sweeps of the net is generally employed in determining infested areas. In the case of canning and freezing peas, a population averaging as low as one insect per 200 sweeps of the net is usually considered a dangerous infestation and dusting should be done.

In the case of seed peas, indications are that five weevils to 25 sweeps of the net will give an infestation of approximately 20 per cent.

Current knowledge of the minimum populations necessary to produce economic injury under all conditions is incomplete and the foregoing figures for dangerous populations are to be considered as tentative only.

2. Dusting for control of the pea weevil in home plantings.

Garden plantings should be dusted with rotenone-bearing dusts at intervals of four to five days. As soon as the peas get beyond

and I thought it the right time to make a general inquiry into
the condition of our schools, and to ascertain what was done
to meet the wants of the people.

EDUCATIONAL INSTITUTIONS.

As I arrived at the camp there was no sign of any educational institution,
but I soon found out that there were two schools, one for boys
and one for girls, taught by a teacher who had been sent up
from the city of San Francisco. The school for boys had about
fifty pupils, and the teacher was a young man of about twenty years
of age, and a good teacher. The school for girls had about
forty pupils, and the teacher was a young woman of about twenty
years of age, and a good teacher. The school for boys had
about fifty pupils, and the teacher was a young man of about twenty
years of age, and a good teacher.

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The edible stage, the vines should be destroyed. Peas that are allowed to ripen in small gardens are a source of weevil infestation.

3. Dusting for the control of the pea weevil on Austrian winter field peas.

- a. If dependency is to be placed in one application, it should be so timed as to kill the maximum weevils possible. In general, this will be after the bulk of the population has left hibernation. This may be after the peas are in full bloom and some pods have set. In case two applications are used, the first should be timed 3 or 4 days before the peak movement of weevils from hibernation; the second to follow after practically all weevils are in the field.
- b. Recommendations relative to equipment, material, and rate of application are the same as for edible peas.

While dusting has given beneficial results in the control of the weevil on Austrian peas, this does not justify any relaxation of the established recommendations for early harvest and prompt fumigation.

III. BORDER TRAP CROPS AND THEIR CARE

The use of a border trap crop in eastern Oregon, Washington, and northern Idaho has proved of value in reducing weevil damage when properly handled. These border trap crops consist of plantings of peas one drill in width around the edge of the field. Planting schedules should be so arranged that the peas in the border strip come into blossom seven to ten days before the main field. It is necessary that the weevils in these borders be destroyed by dusting before the main crops comes into bloom. The peas in these borders will often be heavily infested and should be destroyed by plowing under before they ripen.

IV. SANITARY AND CULTURAL MEASURES

1. Value of cultural and sanitary practices. (Including fumigation of seed peas.)

Of coordinate value with dusting are various cultural and sanitation practices which should be followed as a means of reducing weevil populations from year to year. The most important of these are as follows:

a. Weevil-free seed

Never plant seed containing living weevils. Large numbers of weevils are able to escape from seed and infest the growing crop.

b. Care of field refuse

Plow deeply using jointors immediately following harvest. An

attempt to salvage weevil-infested canning peas as seed only breeds more weevil for succeeding crops. Peas grown as a soil conserving crop should be thoroughly plowed under shortly after blossoming. Otherwise they may constitute a source of weevil infestation for all peas in that area.

Burning is no longer recommended as a means of checking the weevil, since it is a serious question as to whether the resulting progressive decrease in soil fertility does not outweigh the immediate benefits of partial weevil control.

2. Growing of dry and green peas in the same area.

The menace of growing seed peas and green peas in the same territory is recognized. The weevils do not mature in peas which are harvested when green. Under present control practices the two crops can be grown in the same territory provided adequate dusting is carried out. Any peas which mature may produce adult weevils which may attack succeeding crops.

3. Care of harvested seed.

Peas of both Austrian and edible varieties should be harvested as soon as they are ripe in order to minimize shattering.

Harvested peas of edible varieties should be stored in tight bags or bins to prevent any weevils from escaping.

These peas should be fumigated before processing, or otherwise treated to destroy the weevils.

Austrian winter field peas should be fumigated immediately after harvest and preferably before cleaning to kill any weevil larvae present before they develop sufficiently to affect germination.

Effective fumigants include hydrocyanic acid gas, chloropicrin, carbon disulphide, methyl bromide and others.

V. COMMUNITY-WIDE COOPERATION ESSENTIAL

Active participation in the accomplishment of the aforementioned control practices by the cannery, pea growers, and the entire agricultural and urban community is necessary.

Effective control of the pea weevil can only be brought about by the thorough application of these suggestions.

For detailed information and guidance concerning the use of these suggestions consult your local authority such as Entomologist or County Extension Agent.

